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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/675,576 | 09/30/2003 | Thomas J. Kenney | NC34672 (9021.165) | 9961 |
| 7590 | 08/10/2005 | | EXAMINER | |
| Scheef & Stone, L.L.P. Suite 1400 5956 Sherry Lane Dallas, TX 75225 | | | TRAN, KHAI | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2637 | |

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------------|-------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/675,576 | KENNEY, THOMAS J. |
| | Examiner KHAI TRAN | Art Unit 2637 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 September 2003.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 1-4,6-8,11,13-16 and 18-20 is/are allowed.
 6) Claim(s) 5,9,10,12 and 17 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show **the line 54** as described in the specification (page 9, line 24). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claims 5, 9, 10, 12, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, lines 2-3, the term "the first multiplicand" lacks antecedent basis.

Regarding claim 9, line 2, the term "said translator" lacks antecedent basis.

Regarding claim 12, line 2, the term "said translator" lacks antecedent basis.

Regarding claim 17, the claims 16 and 17 are not clear that the limitation of "wherein the selected angular range is comprised of a first angular subrange and a second angular subrange" of each claim are the same or not, if they are the same, claim 17, the limitation should be changed --wherein the selected angular range is comprised of **the** first angular subrange and **the** second angular subrange-- otherwise, claim 17 should depend on claim 15 instead of claim 16.

Claim 10 is rejected by virtue of their dependency.

Allowable Subject Matter

3. Claims 1-4, 6-8, 11, 13, 14-16, 18-20 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art discloses or suggests an improvement of an approximator for forming an approximation of a Euclidean norm of a data symbol defined in terms of a first component portion and at least a second component portion in a digital communication device, the approximator comprising: a transformer coupled to said

detector, said transformer for transforming the first component portion into a first transformed value and for transducing the second component portion into a second transformed value, the first and second transformed values, respectively, formed by said transformer selected such that a geometric argument defined therefrom is within a selected angular range; and an estimator adapted to receive the first and second transformed values, respectively, said estimator for estimating the Euclidean norm of the data symbol, the Euclidean norm estimated to be a summation of a first product value formed from the first transformed value and a second product value formed from the second transformed value.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Park et al (U.S. Pat. 5,487,133) disclose distance calculating neural network classifier chip and system.

Rajagopal et al (U.S. Pat. 6,665,335) disclose system and method for estimating a shift between two signals where one signal is known in advance.

Subramaniam et al (U.S.2004/0146117 A1) disclose reduces complexity channel estimation for wireless communication systems.

Dabak et al (US 2005/0025223 A1) disclose code division multiple access wireless system with closed loop mode using ninety degree phase rotation and beamformer verification.

Deering (U.S. Pat. 6,879,328) discloses a support of multi-layer transparency.

M.Barni et al, IEEE 1995. disclose optimum linear approximation of the Euclidean norm to speed up vector median filtering.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KHAI TRAN
Primary Examiner
Art Unit 2637